

# Feasibility Study of Sustainable Distributed Generation Technologies for the Duck Valley Reservation

DOE Tribal Energy Program Review Meeting  
Golden, Colorado

November 19, 2003

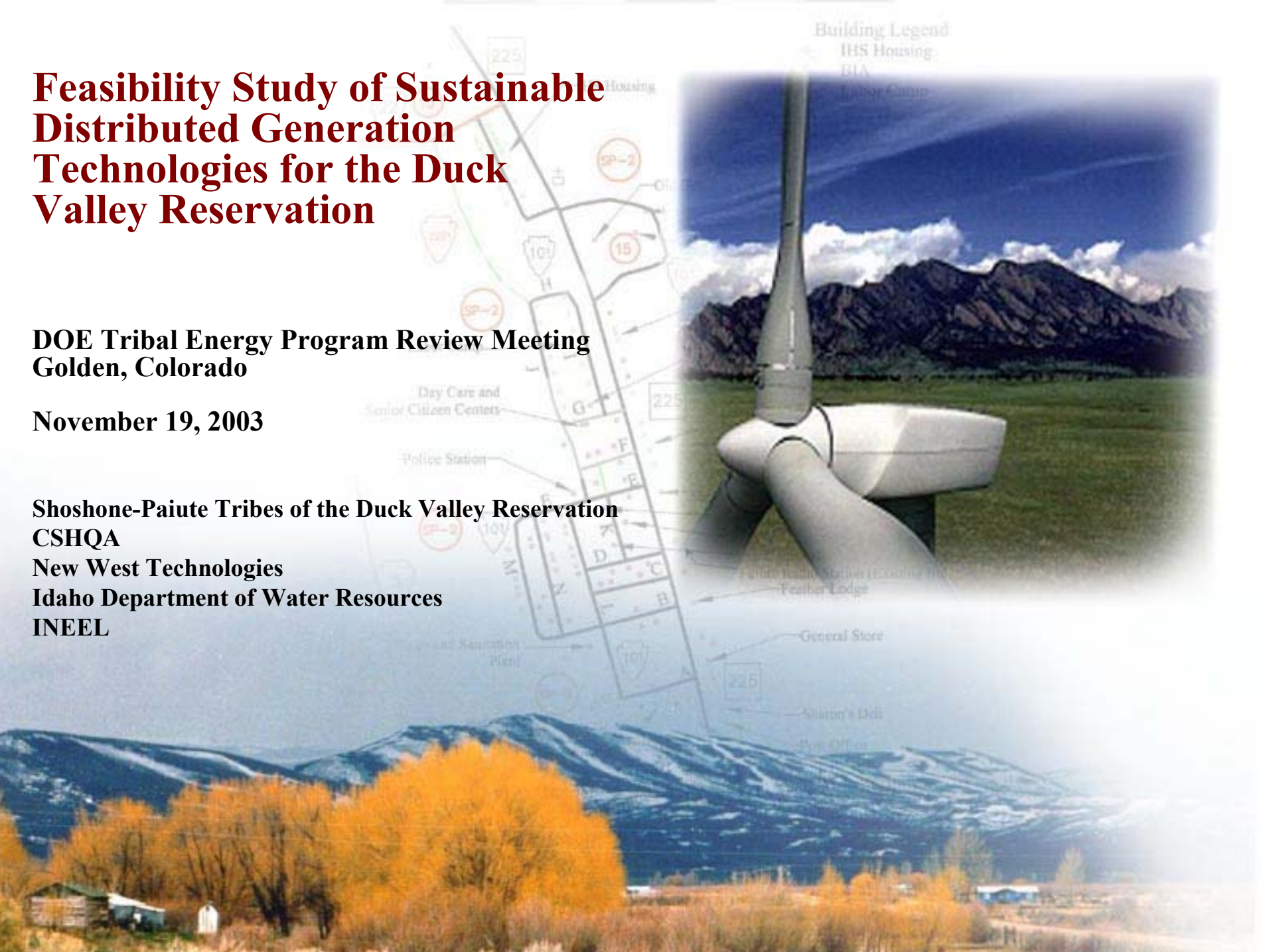
Shoshone-Paiute Tribes of the Duck Valley Reservation

CSHQA

New West Technologies

Idaho Department of Water Resources

INEEL



# *Introduction to Duck Valley*

- **Idaho/Nevada Border**
- **453 Square Miles**



# *Introduction to Duck Valley*

- **High Desert**
- **Very Remote**
- **Primary Industries**
  - Ranching
  - Fishing and Hunting
  - Agriculture
  - Tribal Government
  - Indian Health Services





# Introduction to Duck Valley

- **Thinly Populated (~1,100 People)**
  - Tribal Members
  - 400 Non-Tribal
  - 400 Area Ranchers and residents of the reservation



# *Economic Drivers at Duck Valley*

- **~40% unemployment**
- **Major Push to Build Reservation Infrastructure and Attract New Businesses**
  - Completed Economic Development Strategic Plan
  - Conducted Duck Valley Energy Summit
  - New Juvenile Center
  - New Commercial and Basic Services Center (under design/construction)



# Economic Drivers at Duck Valley (cont.)

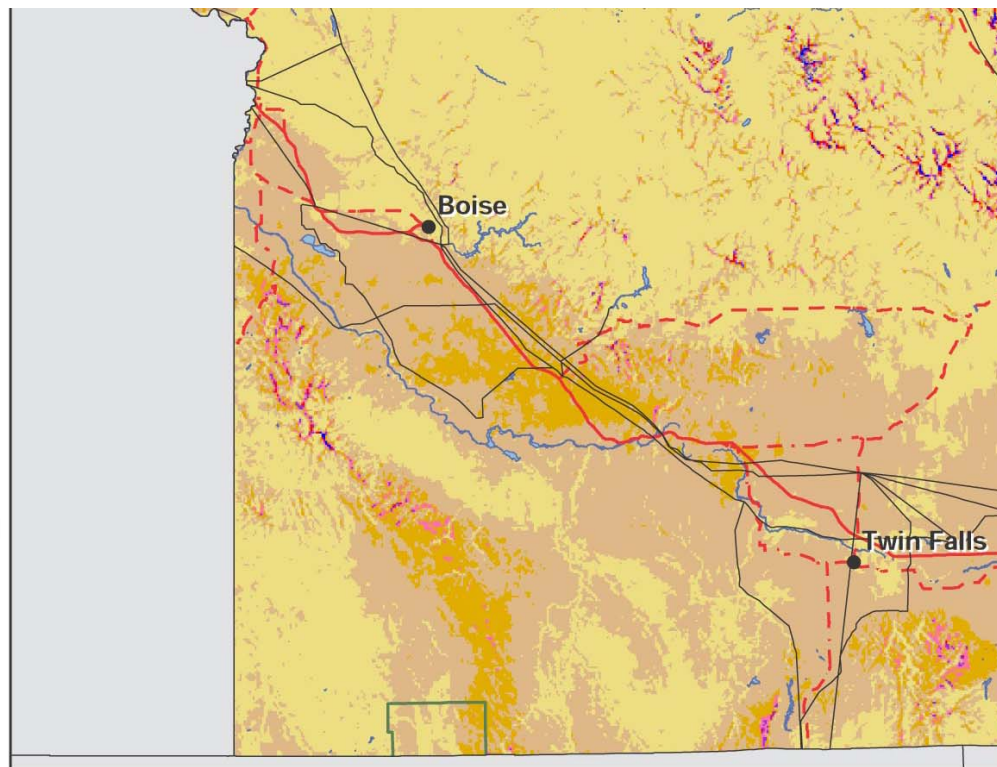
- **Electric Delivery System is Unreliable and Antiquated**
  - Reservation Served by a Single 69 KV Transmission Line/“Dead End” Radial 34.5 KV Distribution Line
- **New 138 KV Line Proposed to Northern Border of Reservation (improved electric service; electricity export?)**
- **Sustainable Energy (Including Off-Reservation Sales) Viewed As a Key Element of Economic Sustainability**



# *Sustainable Energy Options*

- **Energy Efficiency (lighting, space conditioning, etc.)**
  - School
  - Institutional Buildings
    - Tribal Government
    - BIA Facilities
    - IHS Facilities
  - Housing
  - Commercial/Agricultural (e.g. water pumping)





	Wind Power Class	Resource Potential	Wind Speed at 50 m (mph)
	Class 1	Poor	0 - 12.5
	Class 2	Marginal	12.5 - 14.3
	Class 3	Fair	14.3 - 15.7
	Class 4	Good	15.7 - 16.8
	Class 5	Excellent	16.8 - 17.9
	Class 6	Outstanding	17.9 - 19.7
	Class 7	Superb	> 19.7

Northwest Cooperative



Development Center



TrueWind Solutions




Bureau of Land Management

● Major Cities

— Transmission Lines > 115 KW

— Limited Access Highway

- - - Highway

 Tribal Reservations

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# *Sustainable Energy Options (cont.)*

- **Wind Power**

- Recently Collected Wind Data Indicates the Potential for Wind Farm Development
- Additional Data Must Be Collected on Multi-MW Sites to Confirm Potential



# *Installation*



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# ***Sustainable Energy Options (cont.)***

- **Propane- and Hydrogen-Fueled Distributed Generation**
  - Fuel Cells
  - Turbines/Engines
- **Solar Electric (PV)**
  - 90% Sunshine (summer) 70% sunshine (winter)
  - Remote electric loads (e.g. water pumping)



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Question and Answer Period

